

RAMIROVICH, S. Z.

"Concerning Coefficient Formulas of Resistance by the Movement of Melted Metals,"
Dok. AN, 54, No. 5, 1946.

RABINOVICH, F.B., red.; POGUDKIN, P.V., tekhn. red.

[Scintillators] Gosudarstvennyi soiuznyi trest "Soiuzreaktiv."
Stsintilliatory. Moskva, Gos. kom-t Soveta Ministrov SSSR po
khimii, 1959, 28 p. (MIRA 14:7)
(Scintillation (Physics))

Handwritten: RABINOVICH, F.D., inzh.
RABINOVICH, F.D., inzh.

Large-scale aerial surveying used in redesigning railroad stations
in England. Transp.stroi. 7 no.7:25 J1 '57. (MIRA 10:11)
(Great Britain--Railroads--Stations) (Photography, Aerial)

RABINOVICH, F.D., inzh.

Machine for plotting curves using aerial photographs.
Transp.stroi. 9 no.9:45-47 S '59. (MIRA 13:2)
(Aerial photogrammetry) (Railroads--Surveying)

S/006/60/000/06/14/025
B007/B005

AUTHORS: Rabinovich, F. D., Panygin, A. V.

TITLE: Sight on the Theodolite Telescope for Observing the Sun in
Azimuth Determination

PERIODICAL: Geodeziya i kartografiya, 1960, No. 6, pp. 48 - 51

TEXT: In 1941, V. V. Kavrayskiy (Ref., Footnote on p. 48) suggested a new method of sun sighting. It was based on the coincidence of the cross wires with the intersecting (or contact) points of the four sun pictures formed by a special prism sight in the field of view of the telescope (Fig. 1). V. V. Kavrayskiy studied such a sight theoretically and made a model of it (Fig. 2). In 1949, an experimental type was made according to this model by the sluzhba vremeni (Time Service) of the TsNIIGAIK. It proved to be complicated in production and inconvenient in operation. In 1957, V. V. Kavrayskiy's scheme was realized in a better construction by F. D. Rabinovich. This sight is briefly described and the test results of the experimental type made in 1957 are given. Figs. 3 and 4 show sectional drawings of this sight, as well as the sight mounted on the theodolite. ✓ B

Card 1/2

Sight on the Theodolite Telescope for
Observing the Sun in Azimuth Determination

S/006/60/000/06/14/025
B007/B005

The test was carried out by A. V. Fanygin. Since 1958, the uchebno-
proizvodstvennyye masterskiye (Factory Training Workshops) of the MIIGAIK ✓ B
have made 30 such sights. There are 4 figures, 1 table, and 1 Soviet
reference.

Card 2/2

BARINOVICH, F. I.

BARINOVICH, F. I.: "The use of formates to activate chrome tanning and reduce the consumption of chromium salts." (Investigation of the dependence of the results of chrome tanning on the acid preparation of the rawhide and the composition of the tanning bath). Moscow, 1955. Min Higher Education USSR. Moscow Technological Inst of Light Industry imeni L. M. Kaganovich. (Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No. 47, 19 November 1955. Moscow.

RABINOVICH, F. I., ^{Cand}~~Senior~~ Techn Sci --(USSR) "The effect of acid and tannic material on the production of calf leather." (The use of formate compounds for activating the tanning process of calf leather and reducing the use of calf-leather salts.) Leningrad, 1957, 14 pp. (Min Higher Educ USSR, Leningrad Technological Inst im. Leningrad), 100 copies. (KI, No 40, 1957, p. 93)

RABINOVICH, F.I., inzh.

Rapid and easy method for determining chromium content of leather.
Kozh.-obuv.prom. 2 no.9:31-32 S '60. (MIRA 13:10)
(Leather--Analysis)

KOSTENKO, D.G., inzh.; LIVYY, G.V., kand.tekhn.nauk; PONOMAREV, S.G., kand.
tekhn.nauk; RABINOVICH, F.I., inzh.; MALKIMAN, Ye.I., inzh.

Effect of the various methods for tanning stiff leather on its
wear resistance. Report No.3. Nauch.-issl.trudy Ukr NIIKP no.13:3-
12, '62. (MIRA 18:2)

RABINOVICH, F.L.

Strengthen the technical control over the quality of metal.
Metallurg 10 no.8:3-4 Ag '64. (MIRA 17:11)

1. Gosudarstvennyy arbitr Gosudarstvennogo arbitrazha pri
Ispolnitel'nom komitete Moskovskogo gorodskogo Soveta depu-
tatsov trudyashchikhaya.

RABINOVICH, F.M., inzh.

At the soap-manufacturing section of the Andizhan Oils and
Fats Combine. Masl. - zhir. prom. 27 no.8:36-37 Ag '61.
(MIRA 14:8)

1. Andizhanskiy maslozhirovoy kombinat.
(Andizhan-Soap industry)

ZUBOK, N.G., inzh.; RABINOVICH, F.P., inzh.

The AB-120 automatic two-stroke cold-upsetting machine with
a one-piece die. Mashinostroenie no.1:36-37 Ja-F '62. (MIRA 15:2)

1. Odesskiy zavod im. XVI parts"yezda.
(Forging machinery)

VASSERMAN, I.M.; RABINOVICH, F.V., redaktor.

[Production of mineral salts] Proisvedstvo mineral'nykh solei.
Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1954. 346 p.
(Salts) (MLRA 7:8)

CHERNOV, Vasilii Fedorovich; RABINOVICH, F.V., redaktor; LUR'YE, M.S.,
tekhnicheskiiy redaktor

[The production of soda ash] Proizvodstvo kal'tsinirovannoi sody.
Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1956. 310 p.
(Sodium carbonates) (MLBA 10:2)

SPERLIN, R.N. [translator]; KNUNYANTS, I.L., akademik, red.;
VITKOVSKIY, D.P., red.; RABINOVICH, P.V., red.; ZASUL'SKAYA,
V.F., tekhn.red.

[Modern experimental methods in organic chemistry] Sovremennye
metody eksperimenta v organicheskoi khimii. Pod red. I.L.
Knuniantsa. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1960.
627 p. (MIRA 14:1)

(Chemistry. Organic--Experiments)

TERENT'YEV, Aleksandr Petrovich; YANOVSKAYA, Lyudmila Aleksandrovna;
RABINOVICH, F.V., red.

[Chemical literature and its use] Khimicheskaya literatura
i pol'zovanie eiu. Moskva, Khimiia, 1964. 318 p.
(MIRA 17:8)

38392

S/166/62/000/002/004/008
B112/B104

94,7600

AUTHOR: Rabinovich, F. Ya.

TITLE: A contribution to the theory of thermal phase shift in semiconductor rectifiers

PERIODICAL: Akademiya nauk Uzbekskoy SSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 2, 1962, 46-54

TEXT: The solutions of the boundary value problem

$$\left. \begin{aligned} x_1 \frac{\partial \theta_1}{\partial z^2} &= c_1 \rho_1 \frac{\partial \theta_1}{\partial t}; & -d_1 < z \leq 0 \\ x_2 \frac{\partial \theta_2}{\partial z^2} &= c_2 \rho_2 \frac{\partial \theta_2}{\partial t}; & 0 < z < d_2 \\ x_3 \frac{\partial \theta_3}{\partial z^2} &= c_3 \rho_3 \frac{\partial \theta_3}{\partial t}; & d_2 < z < d_3 \end{aligned} \right\} \quad (1)$$

Card 1/3

A contribution to the theory of ...

S/166/62/000/002/004/008
B112/B104

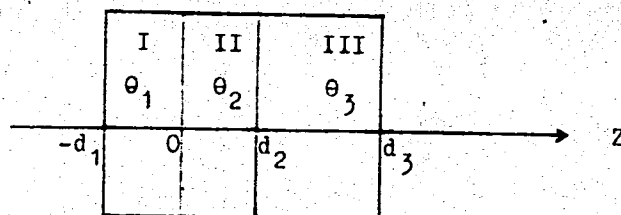
$$\left. \begin{aligned} -\left(\frac{\partial \theta_1}{\partial z}\right)_{-d_1} + h_1(\theta_1 - T_0)_{-d_1} &= 0 \\ x_1\left(\frac{\partial \theta_1}{\partial z}\right)_0 - x_2\left(\frac{\partial \theta_2}{\partial z}\right)_0 &= Q \\ \theta_1(0) &= \theta_2(0) \\ \theta_2(d_2) &= \theta_3(d_2) \\ x_2\left(\frac{\partial \theta_2}{\partial z}\right)_{d_1} &= x_3\left(\frac{\partial \theta_3}{\partial z}\right)_{d_1} \\ \left(\frac{\partial \theta_3}{\partial z}\right)_{d_1} + h_2(\theta_3 - T_0)_{d_1} &= 0 \end{aligned} \right\} \quad (2)$$

supply a thermal model of a semiconductor rectifier whereof the cross section may be represented as follows:

Card 2/3

A contribution to the theory of ...

S/166/62/000/002/004/008
B112/B104



The author confronts his results with those of G. M. Avak'yants (Izv. AN UzSSR, 1955, No. 8) and finds the following differences:

(a) $\text{Re } \theta \neq \text{Im } \theta$, (b) a different frequency dependence of the phase shift, and (c) a finite θ for the frequency $\omega \rightarrow 0$. There are 3 figures.

4

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR
(Physicotechnical Institute AS UzSSR)

SUBMITTED: May 10, 1961

Card 3/3

ACCESSION NR: AP4038623

S/0109/64/009/004/0716/0723

AUTHOR: Aronov, D. A.; Rabinovich, F. Ya.

TITLE: Investigating the current-voltage characteristic of tunnel diodes

SOURCE: Radiotekhnika i elektronika, v. 9, no. 4, 1964, 716-723

TOPIC TAGS: semiconductor, semiconductor diode, diode, tunnel diode, germanium tunnel diode, current voltage characteristic

ABSTRACT: A theoretical study in which a formula (30) is developed describing the current-voltage characteristic is reported; in the cases of strong degeneration and very low voltages (under the minimum voltage), the new formula is

reduced to $J = J_m \frac{2V}{V_m} \left(1 - \frac{V}{2V_m}\right)$, where I_m is the maximum current, V_m is the maximum voltage, V is the supply voltage. The value and position of the current

Card 1/2

ACCESSION NR: AP4038623

maximum and their temperature dependence (positive or negative) are determined by the conditions of production of the tunnel diode. This holds true in both cases: (a) a strong degeneration and (b) a substantial blurring of the function of carrier distribution. The new formulas are claimed to be in good agreement with experimental data. "In conclusion, the authors consider it their pleasant duty to thank E. I. Adirovich for his valuable comments and useful discussion." Orig. art. has: 32 formulas.

ASSOCIATION: none

SUBMITTED: 21Jan63

DATE ACQ: 05Jun64

ENCL: 00

SUB CODE: EC

NO REF SOV: 006

OTHER: 003

Card 2/2

1ST AND 2ND ORDERS		PROCESSES AND PROPERTIES INDEX	
CA			10
Purification of pyramidone. S. I. Kaplan, F. E. Rabinovich, and I. E. Gorbovitskii. U.S.S.R. 69,579, Oct. 31, 1947. Tech. pyramidone is dissolved in water and is then salted out by addn. of an inorg. salt, e.g., NaCl. M. Hosen			
ASS. S.L.A. METALLURGICAL LITERATURE CLASSIFICATION			
MATERIALS INDEX		SIGNI BOMIN	
SIGNI BOMIN		SIGNI BOMIN	

RABINOVICH, F. E.

Kaplan, S. I. and Rabinovich, F. E., A diagram of fusibility of the system pyramidon-water and the solubility of antipyrine in certain solvents. P. 1162.

The solubility of antipyrine in dichloroethane, ethyl alcohol and water is studied in a temp. interval 14° to 72° . The diagram of fusibility of the system pyramidon-water is studied. This system forms a eutectic mixture containing 1.01% pyramidon with melting temp. -0.1° . In this system the region of separation is established in a concentration interval from 21 % to 63% of pyramidon at $72.5 - 73^{\circ}$.

The Orzhonikidze All-Union Scientific
Research Inst. of Chemical Pharmacy.
March 18, 1948.

SO: Journal of Applied Chemistry (USSR) 21, No. 11 (1948)

RABINOVICH, F. YE.

USSR/Chemistry, Analytical - Alkaloids, Jul/Aug 52
- Insecticides

"Application of Ion Exchange Resins in the Analysis
of Anabasine," F. Ye. Rabinovich, M. A. Romanovsk,
All-Union Sci Res Chem-Phar Inst Invent S.
Orthobenzilidze

"Med Prom" No 4, pp 38-40

Using a cationic resin (Espatit from the Komarov
Plant, which has a considerable stability toward
acids), anabasine was adsorbed from the soln. It
was then extracted with 40% sulfuric acid and deriv

22273

colorimetrically after reaction with H_2SO_4 , which
proceeds under formation of colored deriv of
glutaconic aldehyde.

22273

"APPROVED FOR RELEASE: Tuesday, August 01, 2000

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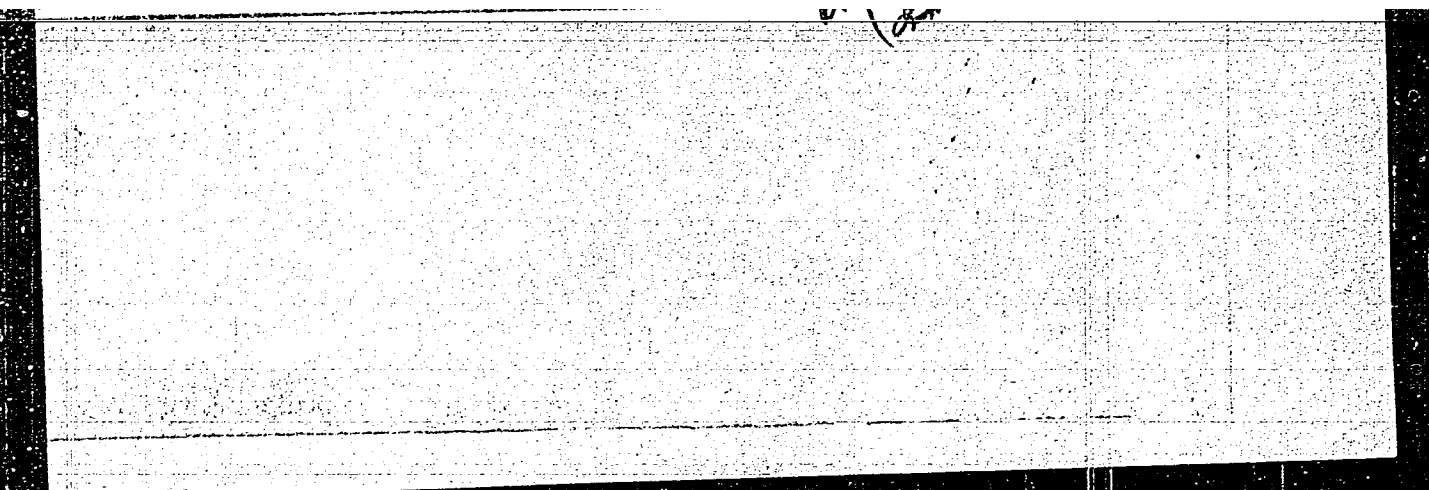
CIA-RDP86-00513R0013438

ROMANCHUK, M.A. RABINOVICH, F.E.
EtOH, Me₂CO, and 30 ml. H₂O. The filtrate was acidified,
evapd. on a steam bath, transferred to a volumetric flask,
and analyzed for codeine. Morphine was desorbed with 5%
H₂SO₄ and detd. Good results were obtained on samples
contg. approx. 0.01 g. codeine and 0.01-0.005 g. morphine.
Eurilla Mayerle

2/2

"APPROVED FOR RELEASE: Tuesday, August 01, 2000

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RABINOVICH, F. Ye.

DOZORTSEVA, P.M.; LETINA, V.S.; MASHKOVSKIY, M.D.; MIRER, Ye.A.;
RABINOVICH, F.Ye.; ROMANCHUK, M.A.

Magnesium trisilicate, its production and properties. Med.prom.
10 no.4:20-22 O-D '56. (MIRA 10:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevticheskiy
institut imeni S.Ordzhonikidze.
(MAGNESIUM SILICATES)

RABINOVICH, F.Ye.; ROMANCHUK, M.A.

Quantitative determination of substituted malonic esters
present in combination. Med.prom. 13 no.3:33-36 Mr '59.
(MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy khimiko-farmatsevti-
cheskiy institut imeni S.Ordzhonikidze.
(MALONIC ACID)

TAREYEVA, A.I.; KHOPACHEVA, A.A.; RABINOVICH, F.Ye.

Comparative studies on anthelmintic properties of various salts
of piperazine. Med.paraz.i paraz.bol. 37 no.5:591-594 S-0 '59.
(MIRA 13:4)

1. Iz otdela farmakologii Vsesoyuznogo nauchno-issledovatel'skogo
khimiko-farmatsevticheskogo instituta imeni S. Ordzhonikidze (zave-
duyushchiy otdelom - prof. M.D. Mashkovskiy).
(PIPERAZINE pharmacol.)

RABINOVICH, G.

The payer of the turnover tax. Fin.SSSR 17 no.8:8-14 Ag '56.
(MIRA 10:12)
(Sales tax)

RABINOVICH, G., inzhener.

Improving the quality of finishing and repairing operations. Zhil.
-kom. khoz. 7 no.1:3-4 '57. (MLBA 10:4)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela remontno-
stroitel'nogo tresta Dzerzhinskogo rayona Leningrada.
(Apartment houses--Maintenance and repair)

RABINOVICH, S.
KUREPIN, V.: RABINOVICH, G.

Mechanized painting of buildings. Zhil.-kom. khos. 8 no.2:18-19
'58. (MIRA 11:2)

1. Glavnyy inzhener remontno-stroitel'nogo tresta Dzerzhinskogo
rayona Leningrada (for Kurepin). 2. Nachal'nik proizvodstvenno-tekhnicheskogo
otdela remontno-stroitel'nogo tresta Dzerzhinskogo rayona
Leningrada (for Rabinovich).
(Spray painting)

RABINOVICH, G., inzh.

~~For a new system in planning and accounting. Zhil.-kom. khoz. 8~~
no. 6:16-17 '58. (MIRA 11:7)
(Apartment houses--Maintenance and repair)

RABINOVICH, G.

Turnover tax rates. Fin.SSR 20 no.3:52-56 Mr '59.
(MIRA 12:7)

(Sales tax)

RABINOVICH, G.

New house in old walls. Izobr. i rats. no.6:8-9,19 Je '61.

(MIRA 14:6)

1. Nachal'nik otdela novoy tekhniki instituta "Lenzhilproyekt."
(Building)

DONSKOY, V., inzh.; IVANKOV, V., inzh.; RABINOVICH, G.

What floor do you want? Izobr. i rats. no. 5:11-12 My '62.
(MIRA 15:5)

1. Institut "Lenzhilproyekt" (for Donskoy, Ivankov).
2. Nachal'nik otdela novoy tekhniki i tipizatsii instituta
"Lenzhilproyekt" (for Rabinovich).
(Elevators)

RABINOVICH, G., inzh. (Leningrad); SEDLUKHA, G., inzh., nauchnyy sotrudnik,
(Leningrad); FRIDMAN, O., inzh., nauchnyy sotrudnik (Leningrad)

Cranes for major repairs. Zhil.-kom. khoz. 12 no.2:13-14 P '62.

(MIRA 15:7)

1. Nachal'nik Otdela novoy tekhniki instituta "Leningradskiy" (for Rabinovich). 2. Leningradskiy nauchno-issledovatel'skiy institut Akademii kommunal'nogo khozyaystva (for Sedlukha, Fridman).

(Apartment houses--Maintenance and repair)(Cranes, derricks, etc.)

RABINOVICH, G., inzh.-mekhanik

More attention to practical training. Za rul. 20 no.3:30 Mr '62.

(MIRA 15:3)

(Automobile drivers)

RABINOVICH, G.

In disregard of economic expediency. Fin.SSSR 23 no.6:36-39
Je '62. (MIRA 15:7)
(Sales tax)

ALEKSANDROV, A., prof.; RABINOVICH, G.

More on the nature of the turnover tax. Fin. SSSR 37 no. 1:29-34
Ja '63. (MIRA 16:2)
(Sales tax)

ALEKSANDROV, A., prof.; ZHEVTYAK, P., dotsent; RABINOVICH, G., dotsent;
YASTREBOV, N., dotsent; LAYKOV, A., prepodavatel'

Strengthen the financial service in enterprises: Efficiency is the
important demand. Fin. SSSR 38 no.1:59-62 Ja '64. (MIRA 17:2)

DUEL', M.A., inzhener; RABINOVICH, G.A., inzhener.

Hydraulic regulators of combustion processes and of the preparation of pulverized coal designed by the plant "Teploavtomat." Rab.energ. 3 no.5:21-26
My '53. (MLRA 6:5)

(Governors (Machinery))

RABINOVICH, G. A.

DUEL', M.A.; RABINOVICH, G.A.; DULEYEV, Ye.M., redaktor; FRIDKIN, A.M.,
tekhnicheskij redaktor.

["Teploavtomat" type of hydraulic automatic regulators] Gidravlicheskie
avtoregulyatory sistemy zavoda "Teploavtomat." Moskva, Gos. energ. izd-
vo, 1954. 103 p. (MLRA 7:12)
(Automatic control)

DUEL¹, Mikhail Aleksandrovich; RABINOVICH, Grigoriy Aronovich;
SHLIOZBERG, Yuriy Abramovich; DULEYEV, Ye.M., red.;
LARIONOV, G.Ye., tekhn. red.

[Automatic hydraulic regulators of thermal processes] Gidrav-
licheskie avtomaticheskie regulatory teplovykh protsessov. Mo-
skva, Gos.energ.izd-vo, 1961. 199 p. (MIRA 15:2)
(Electric power plants—Equipment and supplies)
(Hydraulic control)

GROSHEV, I.A., inzh.; IL'IN, E.I., inzh.; RABINOVICH, G.A., inzh.;
SITKOVSKIY, A.Ya., inzh.; TSIBULEVSKIY, A.I., inzh.

Automatic conveyor line. Mekh. i avtom. proizv. 17 no.5:5-6
My '63. (MIRA 16:6)

(Balaklava—Conveying machinery)
(Electronic control)

L 55151-65 ENT(d)/EEC(k)-2/EEC-4/ENP(v)/ENP(k)/ENP(h)/ENP(1) Po-4/Pq-4/

Pf-4/Pq-4/Pk-4/P1-4

ACCESSION NR AM5005930

BOOK EXPLOITATION

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681.2,002.56

Kosharskiy, B. D.; Bok, V. A.; Eznovskaya, T.M.; Gorokhova, M. S.; Krastovskiy,

Z. H.; Rabinovich, O. A.; Shoshunov, Yu. A.; Frenkel, I. B.

Automatic devices and regulators; handbook material (Avtomaticheskiye pribory i regulatory; spravochnyye materialy) Moscow, Izd-vo "Mashinostroyeniye", 64. 0704 p. illus., fold. diagrs. Errata slip inserted. 19,000 copies printed

TOPIC TAGS: automatic control, automatic temperature control, automatic pressure control, automatic vacuum control, temperature instrument, pressure measuring instrument, flow meter, liquid level instrument, pneumatic servomechanism

PURPOSE AND COVERAGE: The book describes the equipment used for automatic control, signaling, and regulation of technological processes, and discusses temperature, pressure, and level control devices, hydraulic, pneumatic, electric, and electronic direct-acting regulators. The book is intended for engineering and technical personnel engaged in the design, planning, and operation of automated industrial enterprises, and may prove useful to students at higher and secondary specialized schools.

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ACCESSION NRAM5005930

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SUBMITTED: 18 June 64

SUB CODE: IE, EC

NO REF. SOV: 000

OTHER: 000

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SITKOVSKIY, A.Ya., inzh.; RABINOVICH, G.A., inzh.; BERLOVSKIY, V.M., inzh.;
GUTNIKOV, I.A., inzh.

Control sets of automatic jawbreakers. Gor. zhur. no. 9:58-59
S '65. (MIRA 18:9)

1. Institut Tyazhpromavtomatika, Khar'kov (for Sitkovskiy,
Rabinovich). 2. Khar'kovskiy nauchno-issledovatel'skiy
elektrotekhnicheskiy institut (for Berlovskiy, Gutnikov).

RABINOVICH, G.B.

AUTHORS: Omelchenko, V.P., Candidate of Technical Sciences, 190-58-4-4/20
Serebrennyy, B.S., Candidate of Technical Sciences,
Mikhailov, P.G., Yalovoy, D.S., Rabinovich, G.B., Engineers

TITLE: Blast-furnace Operation at a Top Pressure of Over 1
Atmosphere (Gauge) (Slobozhanskyi gosyuzavod pechi pri dani
Molokanovskiy gosyuzavod pechi pri dani)

PERIODICAL: Metallurg, 1958, No. 6 (USSR).

ABSTRACT: The authors give operating data for No. 3 blast furnace
at the Krivorohtal' Works melting 146 tons of iron (2.3 - 2.7% Si)
from a burden containing 96.7 - 100% pig iron and 55.03 -
56.97% Fe for a period (March - October 1956) when the top
pressure was changed monthly in the range 0.46 - 1.13 atm
(gauge). After allowing for the change in the top pressure
burden, the authors conclude that raising top pressure from
0.46 - 0.71 to 1 - 1.02 atm. (gauge) leads to an increase in
furnace productivity of 4 - 7% and a decrease in coke rate of
5 - 8%. The pressure drop through the furnace and the rate of
production decreased with increasing top pressure and the rate of
melting increased. With increasing top pressure, the rate of
melting and the coke charge was reduced from 6.3 - 6.45 to
5.4 tons, the charging cycle COCCH and COCCH being
Card 1/2 delayed. There is 1 table.

ASSOCIATIONS: Dnepropetrovsk Institute of Metallurgy (Dnepropetrovsk
Institute of Metals) and Dnepropetrovsk (Dnepropetrovsk)

Card 2/2

RABINOVICH, G.B.

SUV/133-59-9-2/31

AUTHORS: Ryazanov, F.F., Netrobo, P.G., Rkryashkin, V.I., Yelovoy, D.S., Brusov, L.P. and Rabinovich, G.B.

TITLE: Mastering of a High Capacity Blast Furnace

PERIODICAL: Stal', 1959, Nr 9, pp 770-775 (USSR)

ABSTRACT: In September 1958, the largest furnace in the USSR (and Western Europe) was blown in, its working volume 1719 m³. The profile and main dimensions of the furnace are shown in Fig 1. The blast is heated in 4 stoves of 27135 m³ heating area each, allowing a blast temperature of 1000 - 1050°C to be maintained. The blast is supplied by a blower of a capacity of 4000 m³/min. The furnace was operating with about 85% of closed sinter (basicity 0.8 - 1.0) containing 1.25 to 1.40 atm. Changes in the output, gas and blast volume during the first month of operation are shown in Fig 2. Furnace operating data for subsequent operation (up to the end of 1958) are given in Table 1 and analyses of iron and slag in Table 3. During December 1958, the average daily output of the furnace rose to 2231 tons (7 casts per day) at a coke rate of 749.6 kg/ton and slag volume of 882.5 kg/ton

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(slag basicity 1.26). It was found that the furnace was very sensitive to the degree of filling of the hearth with liquid products (Fig 3). Any retardation in the casting or removal of slag considerably decreases the rate of descent of burden materials. Changes in the composition of the gas produced in the furnace (Fig 4) and the slag (Fig 5) are shown in the CO₂ content of the top gas along the furnace radius - Fig 3). Operating conditions and material balances for two operating periods - Table 3. From the operating experience gained it is concluded that large furnaces can operate efficiently at large outputs. An increase in the sinter basicity of 0.1 increases the output of the furnace by 1.2%. Some deterioration in the size distribution of sinter caused by an increase in basicity did not cause any noticeable deterioration in the furnace operation. An increase in the blast volume of 100 m³/min increases the output by 1.3%. The depth of the combustion zone in the furnace was found to be about 200 mm, which for a furnace of 400 mm diameter is insufficient. Therefore, measures should be taken to increase it. An increase in

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the blast temperature from 840° to 970°C and the moisture content from 30 to 40 g/m³ decreased the coke consumption by 2.6% and increased the output by 3.7%. Therefore the utilization of carbon monoxide for reduction increased from 39 to 41%, the degree of direct reduction somewhat increased and the participation of hydrogen in the reduction amounted to about 5%. The following deficiencies in the furnace operation are listed: a) blast gases with three 90° bend which caused an increase in the pressure drop; b) lack of balance between the capacity of the scale car and skips which causes some difficulties in the furnace charging (not specified) and c) the positioning of tunnels for power cables and water mains in places where, in case of a break out, the penetration of liquid iron is possible. There are 5 figures and 3 tables.

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NEKRASOV, Z.I.; POKRYSHKIN, V.L.; NETREBKO, P.G.; RABINOVICH, G.B.;
KAMENEV, R.D.

Blast furnace performance with a high-grade fluxed sinter. Stal'
23 no.5:389-393 My '63. (MIRA 16:5)

1. Institut chernoy metallurgii Gosudarstvennogo komiteta po chernoy
i tsvetnoy metallurgii pri Gosplane SSSR i Krivorozhskiy
metallurgicheskiy zavod.

(Blast furnaces--Equipment and supplies)

NETRUKO, P.G., inzh.; RABINOVICH, G.B., inzh.; SUKONNIK, M.A., inzh.;
MASLOV, V.S., inzh.; LISHIN, I.I., inzh.

Experimental use of conveyor feeding of the charge mixture to
powerful blast furnaces. Stal' 23 no.5:397-400 My '63. (MIRA 16:5)

(Blast furnaces) (Conveying machinery)

SUZDNIK, M.A.; KUZUB, V.M.; RABINOVICH, G.B.; TOVAROVSKIY, I.G.; KASENEV,
P.D.

Optimal rate of blast furnace smelting and the ore load. Met. i
gornorud. prom. no.5:6-8 S-O '64. (MIRA 18:7)

1. Krivorozhskiy metallurgicheskiy zavod.

TOVAROVSKIY, I.G.; SUKONNIK, M.A.; KAMENEV, R.D.; KOZUB, V.N.;
RABINOVICH, G.B.

Limits of forcing blast furnace smelting. Metallurg 9 no.5:5-9
My '64. (MIRA 17:8)

1. Krivorozhskiy metallurgicheskiy zavod.

KRIVENKO, V.I.; RABINOVICH, G.B.; SERGIYENKO, V.D.; STOROZHNIK, D.A.

Operation of the mechanical equipment of blast furnaces with
a 2,000 capacity. Stal' 24 no.10:871-874 O '64.

(MIRA 17:12)

RABINOVICH, G. D., Engineer

Candidate Sci.

"Investigation of a Continuously Acting Thermal-Diffusion Apparatus." Sub 29
Jun 51, Moscow Order of Lenin Chemico-technological Inst imeni D. I. Mendeleyev

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

"APPROVED FOR RELEASE: Tuesday, August 01, 2000

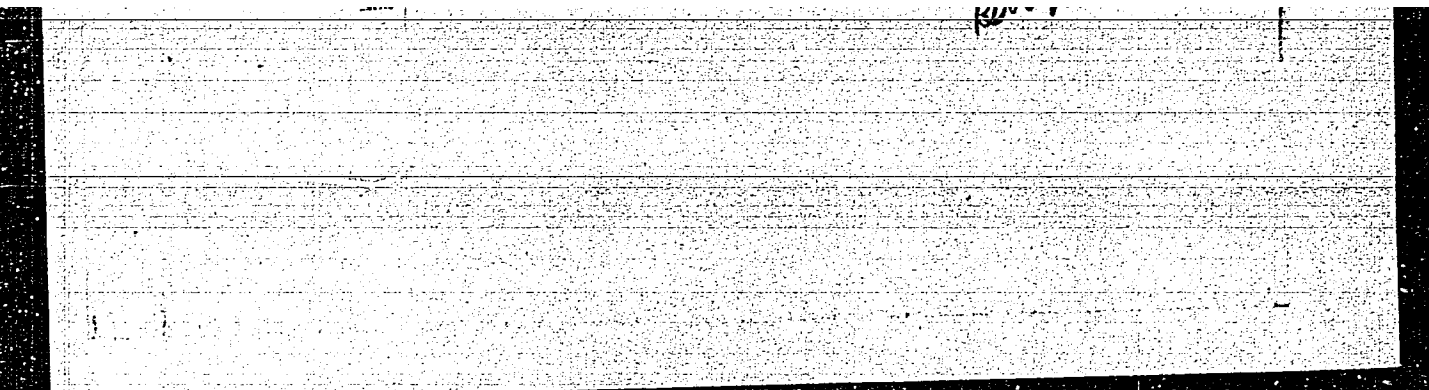
CIA-RDP86-00513R001343

✓ The design of heat exchangers. G. D. Rabinovich.
Tabl. No. 23. 607-74(1063).

APPROVED FOR RELEASE: Tuesday, August 01, 2000

CIA-RDP86-00513R0013438

"APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R001343



APPROVED FOR RELEASE: Tuesday, August 01, 2000 CIA-RDP86-00513R0013438

RABINOVICH, G. D.

USSR/Physics - Heat exchange equipment

FD-912

Card 1/1 Pub 153-21/26

Author : Rabinovich, G. D.

Title : Computation of heat-exchange apparatus (second report)

Periodical : Zhur. tekhn. fiz. 24, 1333-1340, Jul 1954

Abstract : Using formulas derived in his earlier article (ZhTF 23, No 4 (1953)), the author obtains differential equations of heat exchange between two heat carriers assuming one of them to possess a heat source. One reference, aforementioned.

Institution : --

Submitted : February 13, 1953

RABINOVICH, G.D.

✓ The calculation of heat exchangers for mashies. G. D. Rabinovich. *Spirasaya Prom.* 22, No. 1, 11-13 (1956).
 The usual formula Nusselt no. cannot be applied to the calcul. of heat exchangers for mashies of the usual constructions (two tubes, one inside the other), as the flow of the mash always is turbulent; the formula $Nu = 0.023 (d_i/d_o)^{0.4}$. $Re^{0.8} Pr^{0.4}$ must be used, where d_i is the internal diam. of the outer tube, d_o the outer diam. of the inside tube, and Re the Reynolds number. Reynolds numbers are presented for mashies of potatoes, barley, and maize, and coeff. of heat transfer for the various tube diams., mash throughputs, and amts. of H_2O in the mashies.
 Werner Jacobson

83512

S/124/60/000/006/016/039
A005/A001

10.4000 (old)

10.2000 (new)

Translation from: Referativnyy zhurnal, Mekhanika, 1960, No. 6, pp. 117-118,
7618

AUTHOR: Rabinovich, G.D.

TITLE: On the Problem of the Motion of a Particle in a Vertical Liquid Stream

PERIODICAL: Tr. In-ta energ. AN BSSR, 1958, No. 4, pp. 68-84

TEXT: The author considers the motion of a particle of constant dimensions and mass in a vertical liquid stream unrestricted by walls. The differential equation of the particle motion is solved for the case of an isothermal liquid flow. In certain cases it is necessary to consider two stages of the particle motion. If the motion of a particle of the specific gravity γ_m proceeds within an ascending flow of a liquid with the specific gravity γ_l , then the existence of two stages takes place in the case $w_0 > u$ for $\gamma_m > \gamma_l$ (when w_0 is the initial velocity of the particle, u is the velocity of the flow), and in the case $w_0 < u$ for $\gamma_m < \gamma_l$ (floating particle). In the first stage, the velocity w of the particle varies from its initial velocity to the liquid stream velocity, and in the

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S/124/60/000/006/016/039
A005/A001

On the Problem of the Motion of a Particle in a Vertical Liquid

second stage, from the stream velocity to a velocity corresponding to the steady motion (for which the relative velocity is equal to the velocity at the suspended state u_s). The difference between the two stages of motion is caused by the change in the direction of the drag, owing to which the sign changes in the basing differential equation before that term, which expresses this force. The author points out that the latter fact was not taken into account in the previous works. In case that the initial velocity of the particle is opposite to the motion of the liquid with $u > u_s$, the time interval is determined, which the particle needs for attaining that point, at which $w = 0$. From this point the particle begins the reverse motion. The motion of the particle with $\gamma_m > \gamma_1$ in the descending (ascending) stream is described by the same differential equation as the motion of the floating particle in the ascending (descending) stream. The corresponding motions are analogous and represent models for each other. When considering the motion of a particle in a pipe of variable cross section, the velocity of the isothermal flow u appears in the former basic differential equation as an exponential function of time. In case of a non-isothermal flow, the heat exchange between the liquid and the particles suspended in it must be taken into account with certain assumptions. An essential variability of the

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S/124/60/000/006/016/039
A005/A001

On the Problem of the Motion of a Particle in a Vertical Liquid Stream

heat exchange coefficient α takes place over the heat exchange surface, which is represented by the summary surface of the particles, from the point of entrance into the pipe to the cross section under consideration; the variability of α is caused by the variation of the relative velocity and the physical constants of the flow. The differential equation of the particle motion is essentially complicated in this case. The author uses this equation for obtaining correlations, which may be used for processing experimental data. 4

Ya.Z. Kleyman

Translator's note: This is the full translation of the original Russian abstract.

Card 3/3

RABINOVICH, G.D.

Problem of the cooling of a homogeneous cylindrical rod with inner
heat sources in a liquid flow. Trudy Inst. energ. AN BSSR no.6:172-174
'58. (MIRA 13:2)
(Heat--Transmission) (Machinery--Cooling)

RABINOVICH, G.D.

Penetrability of varnishes by infrared radiation [with summary in English]. Inzh.-fiz. zhur. no. 9:52-62 S '58. (MIRA 11:10)

1. Institut energetiki AN BSSR, g. Minsk.
(Varnish and varnishing--Drying)
(Infrared rays--Industrial applications)

AUTHOR: Rabinovich, G. D. 57-28-5-28/36

TITLE: On the Computation of Heat Exchange Apparatus.III(Refs 1-3)
(K raschetu teploobmennyykh apparatov.III (1-3))

PERIODICAL: Zhurnal Tekhnicheskoy Fiziki, 1958, Vol. 28, Nr 5, pp. 1077-1083 (USSR)

ABSTRACT: In the present paper the author investigated the process of the approximation to the steady state in the case of direct-flow and counterflow motion of heat carriers without internal heat source. The physical constants of the heat-transferring liquids and their velocities are assumed in that respect, as they are averaged over the length of the heat-transferring surface. The temperature distribution of the heat carriers was found as the function of the coordinates x and of time τ ; If $\frac{x}{\omega}$ is the time necessary for reaching the liquid section, which has been removed from the entrance to the distance x , then in every case an inequality $\tau - \frac{x}{\omega} > 0$ must hold. The temperatures of the heat-transferring liquid in a direct-flow apparatus are only functions of the coordinate and are for all sections corresponding to the condition $\tau - \frac{x}{\omega} > 0$ independent of time. In the direct-flow heat exchange apparatus the steady temperature condition is established immediately after the

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On the Computation of Heat Exchange Apparatus.III(Refs. 1-3) 57-28-5-28/36

liquid has entered the apparatus. The prescribed temperatures of the heat carriers are reached at the exit of the apparatus when the exit cross section of that liquid is reached which has the smaller velocity. In the case of counterflow the problem must be formulated as follows: On the one side of the heat exchange surface the liquid 1 flows continuously in the direction of the negative x-axis. This liquid enters the apparatus through that section having the coordinate $x=1$, the temperature in this section being constant and equal to $t'_n = 0$. At the moment $\tau = 0$ the liquid 2 begins to flow on the other side entering through the section $x=0$ and moving in the direction of the positive x-axis, the temperature of this liquid in the entrance cross-section being kept at $t'' = \text{const}$. It is required to find a law for the approximation to the steady state. Hence, the problem is reduced to the solution of a differential equation with the following boundary conditions

$$\begin{array}{lll} t' \Big|_{x=1} = 0 & t' \Big|_{x=1} = 0 & t'' \Big|_{x=0} = t''_n \\ (19) & (20) & (21) \end{array}$$

If the fact is taken into consideration, that

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On the Computation of Heat Exchange Apparatus. III (Refs 1-3) 57-28-5-28/36

$t'' = n_1 \frac{dt'}{d} - n_1 \omega_1 \frac{dt'}{dx}$, the law of the approximation to the steady state for the liquid 2 can be determined, by introducing the value t'

$$t' = - \frac{\beta t''}{\alpha \beta_m + \beta e^{-\alpha m}} \left\{ e^{-\alpha m} \left[e^{(m-m_x)\beta} - e^{-(m-m_x)\alpha} \right] + 8\sqrt{2} \Phi(x, \tau) \right\}$$

into formula (33). There are 4 Soviet references.

SUBMITTED: April 3, 1957

: 1. Heat exchangers--Design

Card 3/3

RABINOVICH, G.D.

Calculation of driving pressures and natural circulation in steam
boilers and evaporators. Inzh.-fiz. zhur. no.7:67-74 J1 '59.
(MIRA 12:10)

1. Institut energetiki AN BSSR, g.Minsk.
(Boilers) (Evaporating appliances)

24(8)

06563

SOV/170-59-9-4/18

AUTHORS: Rabinovich, G.D., Slobodich, G.N.

TITLE: An Experimental Investigation of the Heat Transfer Process Between a Pulsating Gas Flow and Solid Particles Suspended in It

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 9, pp 30-37 (USSR)

ABSTRACT: A number of writers dealt with the problem of intensification of heat transfer: I.T. El'perin, V.P. Romadin [Ref 5], Linke and Hufschmid [Ref 3]. The authors of the present paper describe the results of some preliminary experiments in their investigation of the heat transfer process in a pulsating gas flow. Hot air heated to 130 - 150°C served as a gas whose flow was periodically interrupted by a pulsator, which led to pulsations of its velocity. The grains of rye were made to move in this pulsating air flow. It has been found that the duration of particle staying in a tube was considerably longer for the case of a pulsating flow than in the stationary flow; this is shown by Figure 1 and Formula 5. On the other hand, the coefficient of heat transfer decreases with an increase in the number of pulsations of the air flow, as shown by Figure 2. However, the resulting effect of pulsations on the effectiveness of heat transfer is positive, as shows Figure 3, and

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06563

SOV/170-59-9-4/18

An Experimental Investigation of the Heat Transfer Process Between a Pulsating Gas Flow and Solid Particles Suspended in It

the effectiveness of this process can be raised by a factor of 3 or 4 in comparison with heat transfer in a stationary flow. This may be of importance for designing small-size or portable drying and heat transfer devices. Investigations of the following Soviet researchers are mentioned in the paper: D.N. Lyakhovskiy, I.M. Fedorov [Ref 9], Z.F. Chukhanov [Ref 11], I. Gastershtadt [Ref 7], N.M. Mikhaylov [Ref 9] and S.S. Zabrodskiy [Ref 12]. There are 3 graphs and 13 references, 10 of which are Soviet, 2 English and 1 American.

ASSOCIATION: Institut energetiki AN BSSR (Institute of Power Engineering of the AS BSSR), Minsk

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14(6)

05279
SOV/170-59-7-10/20

AUTHOR: Rabinovich, G.D.

TITLE: The Calculation of Driving Pressures and Natural Circulation in Steam Boilers and Evaporators

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 7, pp 67 - 74 (USSR)

ABSTRACT: In view of the fact that the TskTI method of calculating circulation does not take into account a number of factors affecting this process, an attempt is made to approach the problem of natural circulation from the standpoint based on the basic equations of heat transfer (Formulae 1 and 1a). The solutions of these equations lead to Formulae 8 and 9 expressing the values of driving pressures P divided by the height of the liquid column H for the cases of direct flow and counterflow respectively. The generalized formula 20 includes all the factors affecting the magnitude of the driving pressure, i.e.: the ratio of specific gravities, circulation ratio, and β -factor, taking care of the temperature of heat carriers at the ends of the heat transfer surface. The average values of the specific gravity of a steam-liquid mixture is expressed by Formula 16.

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05279

SOV/170-59-7-10/20

The Calculation of Driving Pressures and Natural Circulation in Steam Boilers and Evaporators

The proposed method of calculation is demonstrated by two numerical examples, and the results are compared with those obtained by the conventional method.

There are: 1 table and 3 Soviet references.

ASSOCIATION: Institut energetiki AN BSSR (Institute of Power Engineering of the AS Belorussian SSR), Minsk.

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G6573

SCV/170-59-9-16/18

24(8)

AUTHOR: Rabinovich, G.D.

TITLE: Session on Convective Heat Transfer

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Nr 9, pp 111-112 (USSR)

ABSTRACT: A session on convective heat transfer took place in the Leningrad House of Scientists from 15 to 20 June 1959. It was convened by the Commission on High-Pressure Steam, the Scientific Technical Council of the Leningrad Sovnarkhoz and TsKTI. About 70 reports were delivered in the Conference. The reports of M.A. Styrikovich (ENIN) and V.Ye. Doroshchuk (VTI) dealt with the problems of the crisis of water boiling. Their conclusions were similar to those of A.P. Ornatskiy (Kiyev Polytechnic Institute). Two reports, by L.D. Berman (VTI) and V.A. Rachko (TsKTI), dealt with the problem of determining the heat transfer coefficients of the steam-air mixture in vacuum. Two reports from ENIN, delivered by Z.L. Miropol'skiy and M.Ye. Shitsman, were concerned with heat emission of water during its cooling in the near-critical region. The reports by N.V. Tarasova (VTI) and A.P. Ornatskiy presented the results of investigations of hydraulic resistance during the boiling of underheated water in tubes. N.I. Semenov

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SOV/170-59-9-16/18

Session on Convective Heat Transfer

(ENIN) reported on an investigation of the hydraulic resistance of the two-phase mixture during its motion along a vertical non-heated tube. S.S. Kutateladze communicated on determination of heat transfer coefficients in a horizontal tube during steam condensation. A.A. Gukhman communicated on a method of calculating the parameters of a moving substance in nozzles with small angles of opening. I.I. Novikov (MIFI) expounded the theory of thermodynamic similarity in which viscosity and heat conductivity were considered not as constant quantities but as thermodynamic variables. A.I. Leont'yev reported on an investigation of the heat transfer processes at forced pulsations of air pressure in a short tube. V.P. Matusevich reported on the theoretical solution of the heat transfer problem in a head point of blunted bodies colliding with a gas stream. I.G. Kulakov made a report on an installation employed in the ENIN for producing high heat loads (up to $50 \cdot 10^6$ kcal/m².hr).

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RABINOVICH, G.D.

Heat transfer in a layer of dispersed material. Inzh.-fiz.zhur.
no.11:18-25 N '60. (MIRA 13:11)

1. Institut energetiki AN BSSR, Minsk.
(Heat--Transmission) (Grain)

S/170/60/003/04/11/027
B007/B102

AUTHOR: Rabinovich, G. D.

TITLE: Some Problems of Nonsteady Heat Exchange in a Layer of Disperse Material

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 4, pp. 73 - 80

TEXT: The author gives an analytical solution of some heat exchange problems, viz. concerning heat exchange in a layer with internal heat sources. In his earlier papers (Refs. 2, 3, 4) he has shown that heat exchange in a recuperative apparatus is expressed by partial differential equation of second order. The problems of heat exchange in a layer can be formulated on the following conditions: 1) The temperature gradient within the particles forming the layer is negligible. This can be attained already with $Bi < 1$. 2) The amount of heat mutually delivered by the particles by contact heat exchange is negligible compared to the amount of heat exchanged by the particles with the liquid flowing through their layer. The differential equations (1) and (2) for the heat exchange between the layer with an internal heat source (of the intensity q) and the liquid flowing through this

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Some Problems of Nonsteady Heat Exchange
in a Layer of Disperse Material

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B007/B102

layer are written down. Equation (2) is solved by the Laplace-Carson transform yielding formula (8). From this formula the individual special cases can be obtained according to the dependence of the internal source on coordinate and time. The following cases are investigated: Case 1: Here, the internal source does not depend on coordinate and time ($q = \text{const.}$) and formula (12) is obtained for t'' . Case 2: The internal source is a function of temperature. Two kinds of functions are investigated: $q = a(t'' - t_0)$ where a and t_0 are certain constant quantities, and $q = a(t'' - bt')$ where a and b are constant. The formulas (19) and (24) are obtained. If $q = 0$, $a = 0$ and $b = 0$ is assumed, formula (26) is obtained for the temperature distribution in a layer without internal sources. In the case in which the heat carriers move crosswise at 90° , formula (27) is obtained. Basing on these results and on some additional assumptions, the heat exchange in a moving layer of disperse material in the case of transverse blowing with a gas at the immovable layer can be investigated. There are 5 references, 3 of which are Soviet.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering of the AS Belorusskaya SSR, City of Minsk)

Card 2/2

RABINOVICH, G. D.

"Heat and Mass Transfer in a Grain Layer."

Report submitted for the Conference on Heat and Mass Transfer,
Minsk, BSSR, June 1961.

RABINOVICH, G.D.

Heat and mass exchange in a layer of damp material. Part 2.
Inzh.-fiz. zhur. no.12:29-34 D '61. (MIRA 14:3)

1. Institut energitiki AN BSSR, g. Minsk.
(Heat-Transmission) (Mass transfer)

88628

S/170/61/004/002/006/018
B019/3060

11.9200

AUTHOR: Rabinovich, G. D.

TITLE: Nonsteady Heat Exchange in a Counterflow Recuperative Apparatus

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1961, Vol. 4, No. 2, pp. 58-62

TEXT: The heat exchange differential equation in a counterflow recuperative apparatus for moderately heated liquids reads as follows:

$$n_1 n_2 w_1 w_2 \frac{\partial^2 t'}{\partial x^2} + n_1 n_2 (w_1 - w_2) \frac{\partial^2 t'}{\partial x \partial \tau} - n_1 n_2 \frac{\partial^2 t'}{\partial \tau^2} + (n_1 w_1 - n_2 w_2) \frac{\partial t'}{\partial x} - (n_1 + n_2) \frac{\partial t'}{\partial \tau} = 0. \quad (1)$$

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Nonsteady Heat Exchange in a Counterflow
Recuperative Apparatus

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S/170/61/004/002/006/018

B019/B060

The boundary conditions were:

TAK:

$$\left. \begin{aligned} t' \Big|_{\tau=0} &= 0; \quad \frac{\partial t'}{\partial \tau} \Big|_{\tau=0} = 0; \quad \frac{\partial t'}{\partial x} \Big|_{\tau=0} = 0; \\ t' \Big|_{x=1} &= 0; \quad t' \Big|_{x=0} - n_1 w_1 \frac{\partial t'}{\partial x} \Big|_{x=0} + n_1 \frac{\partial t'}{\partial \tau} \Big|_{x=0} = t'' \end{aligned} \right\} \quad (2)$$

In these equations, t' is the temperature of the liquid (first coolant), and t'' is that of the second coolant. The remaining symbols were defined in previous studies conducted by the author and are not described more closely here (Refs. 1,2). A Laplace-Carson integral transformation is used to obtain the solution

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Nonsteady Heat Exchange in a Counterflow
Recuperative Apparatus

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B019/B060

$$t' = t'' \left[1 - \frac{1 - \frac{n_2 \omega_2}{n_1 \omega_1} \exp \left(- \frac{n_1 \omega_1 - n_2 \omega_2}{n_1 n_2 \omega_1 \omega_2} x \right)}{1 - \frac{n_2 \omega_2}{n_1 \omega_1} \exp \left(- \frac{n_1 \omega_1 - n_2 \omega_2}{n_1 n_2 \omega_1 \omega_2} l \right)} \right] +$$

$$+ 2 \sqrt{\frac{n_2 \omega_2}{n_1 \omega_1}} \exp \left[- \frac{n_1 \omega_1 - n_2 \omega_2}{n_1 n_2 \omega_1 \omega_2} x \right] \sum_{j=1}^{\infty} \exp \times$$

$$\times \left[- \left(m \frac{a+b}{a-b} + \mu_j \operatorname{cth} \mu_j \right) \frac{a-b}{2m} \tau \right] \Phi \left(\mu_j, \nu_j, \frac{x}{l}, m \frac{a+b}{a-b}, \frac{a-b}{2m} \tau \right) \Bigg] \quad (12)$$

As may be seen, this solution consists of two summands, the first of which represents the temperature distribution over the coordinate on the approach to steady state, and the other represents the deviation of the

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Nonsteady Heat Exchange in a Counterflow
Recuperative Apparatus

S/170/61/004/002/006/018
B019/B060

temperature field from steady state during stabilization. The calculation of this solution, while opposing great difficulties due to the bad convergence of the second summand, is very important. An expression is obtained for the time within which a counterflow recuperative apparatus approaches steady state. There are 1 figure, 1 table, and 2 Soviet references.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering of the AS BSSR, Minsk)

SUBMITTED: September 21, 1960

Card 4/4

49927

S/170/61/004/003/005/013
B117/B209

26.2211

AUTHOR:

Rabinovich, G. D.

TITLE:

The problem of nonsteady cooling of a bounded volume of a liquid

PERIODICAL:

Inzhenerno-fizicheskiy zhurnal, v. 4, no. 3, 1961, 58-63

TITLE: The author describes a method of calculating a portable heat exchanger for cooling reaction vessels. The heat exchange process is investigated in a heat exchanger which is schematically shown in Fig. 1. Reaction vessel 1 contains liquid II; the quantity of water equivalent to the volume of this liquid is represented by W_p^{II} . The liquid is circulated over heat exchanger 3 by means of pump 2. The second coolant which, at a constant temperature t_H , is contained in the heat exchanger, may be circulated either in or against the direction of coolant II. In the present paper the concrete case is described, where the liquid in the reaction vessel contains an internal source of capacity q with $q = 0$ outside this volume. Such a condition is met, e. g., by homogeneous nuclear reactors with a detachable

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89927

S/170/61/004/003/005/013

B117/B209

The problem of nonsteady ...

cooling surface. For any instance of time one may write
 $W_2 [t_p'' - t''(F, \tau)] d\tau = -W_p'' dt_p'' + qV_{2p} d\tau$ (1) and

$-W_p'' t_p'' + V_{2p} \int_0^\tau q d\tau = W_1 \int_0^\tau t'(F, \tau) - t_H' d\tau$ (2), where V_{2p} denotes the volume of liquid II in the reaction vessel. Formula (1) describes the mixing of the liquid in the reaction vessel with that from the heat exchanger. Eq. (2) shows that the amount of heat extracted from liquid II is equal to that absorbed by liquid I. Differentiation of (2) with respect to τ gives (4):

$dt_p''/d\tau = (qV_{2p}/W_p'') - (W'/W_p'') [t'(F, \tau) - t_H']$. If heat exchanger 3 (Fig.1) operates in direct flow, the differential equation describing the heat exchange in such an arrangement has the form of (6):

$$\frac{\partial^2 t'}{\partial y^2} + \left(\frac{W_1}{W_2} + \frac{W'}{W''} \right) \frac{\partial^2 t'}{\partial y \partial \tau} + \frac{W'}{W''} \frac{W_1}{W_2} \frac{\partial^2 t'}{\partial \tau^2} + \left(1 + \frac{W_1}{W_2} \right) \frac{\partial t'}{\partial y} + \frac{W_1}{W_2} \left(1 + \frac{W'}{W''} \right) \frac{\partial t'}{\partial \tau} = 0, \quad (6)$$

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B117/B209

The problem of nonsteady ...

$y = kF_x/W_1$, where F_x denotes the heat-exchange area from the entrance of the liquid to the cross section x ; W' and W'' stand for the quantities of water equivalent to the volume of the two coolants. By simultaneous solution of Eqs. (4) and (6) one can derive formulas (15) and (16) for determining the heat-exchange area cooling a bounded volume of liquid with an internal source of capacity q :

$$a = qV_{2p}/W_1(t_p'' - t_H') \quad (15);$$

$$\lambda = kF/W_1 = -1/[1 + (W_1/W_2)] \log \left(1 - a [1 + (W_1/W_2)] \right) \quad (16).$$

Moreover, from this one obtains formula (17) for the estimation of the time until the steady state is reached: $\tau \approx 3W_p''/aW_1$ (17). The formulas derived were checked by calculating an HRE-type homogeneous test reactor (Yadernyye reaktory, t. II, IL, 1957). It is shown that these formulas are valid also for counter-flow. A. G. Kasatkin is mentioned. There are 1 figure and 3 Soviet-bloc references.

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The problem of nonsteady ...

S/170/61/004/003/005/013
B117/B209

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering, AS BSSR, Minsk)

SUBMITTED: November 14, 1960

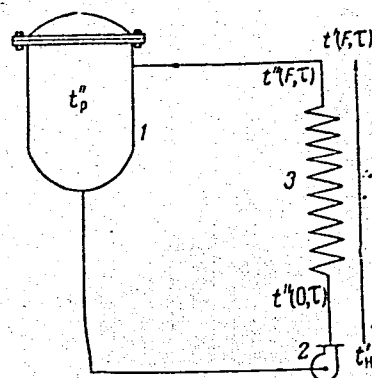


Рис.1

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RABINOVICH, G.D.

The journal "Teplo- i massoperenos." Inzh.fiz.zhur. 4 no.7:137-
140 J1 '61. (MIRA 14:8)

(Heat--Transmission--Periodicals)

(Mass transfer--Periodicals)

28906 S/170/61/004/011/004/020
B104/B112

26.2181

AUTHOR: Rabinovich, G.-D.

TITLE: Steady heat exchange between three coolants flowing in parallel flow through a recuperator

PERIODICAL: Inzhenerno-fizicheskii zhurnal, v. 4, no. 11, 1961, 37-43

TEXT: The author studies the steady heat exchange between three coolants in a system shown in Fig. 1. Wall 1 is made of a heat-conducting material, and wall 2 is an ideal heat insulator. The possible directions of motion of the coolants are shown in Fig. 2. The heat exchange in all modes of coolant motion is described by a homogeneous differential equation of third order:

$$\frac{d^3 t}{du_x^3} + (p+r) \frac{d^2 t}{du_x^2} + pr \frac{dt}{du_x} = 0. \quad (4),$$

where $\lambda = \sqrt{a^2 - 4b}$, $r = \frac{a - \lambda}{2}$, $p = \frac{a + \lambda}{2}$. Here, $R_{ki} = W_k/W_i$; W_i are the water equivalents of the coolants; $u_x = k_{31} F_{31}(x)/W_3$; $\beta = k_{31} F_{31}/k_{12} F_{12}$.

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Steady heat exchange between ...

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B104/3112

k_{31} , k_{12} , F_{31} , and F_{12} are the heat-transfer coefficients and the heat-exchange surfaces of the walls. The cases α and δ (Fig. 2) are studied. The solution of (4) under given boundary conditions is:

$$t''' = A + Be^{-ru_x} + Ce^{-pu_x}, \quad (12),$$

$$A = t'_n + (t''_n - t'_n) \frac{R_{32} - \theta_0}{R_{32} + R_{12} + 1}; \quad B = -(t''_n - t'_n) \frac{\beta[1 + R_{12}(1-p)] - \theta_0}{rR_{12}\beta(p-r)};$$

where

$$C = (t''_n - t'_n) \frac{\beta[1 + R_{12}(1-r)] - \theta_0}{pR_{12}\beta(p-r)}; \quad \theta_0 = \frac{t'_n - t''_n}{t''_n - t'_n} \quad (13),$$

$$t' = A + B(1-r)e^{-ru_x} + C(1-p)e^{-pu_x};$$

$$t'' = A + B[1 - r\{R_{12}\beta(1-r) + (1+\beta)\}]e^{-ru_x} + \quad (14),$$

$$+ C[1 - p\{R_{12}\beta(1-p) + (1+\beta)\}]e^{-pu_x}. \quad (15).$$

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B104/B112

Steady heat exchange between ...

The quantity u is calculated from (12), (14), or (15). Particular cases of heat transfer between the three coolants (Fig. 3) are studied. The case of heat transfer where the liquid II has an infinitely large water equivalent is considered. A heat exchanger with dissipation is calculated. It is shown that the losses may reach high values if $\beta < 100$. M. A. Mikheyev (Osnovy teploperedachi (Bases of Heat Transfer), CEI, 1956) is mentioned. There are 3 figures, 1 table, and 4 references: 3 Soviet and 1 non-Soviet. The reference to the English-language publication reads as follows: Gardner K. A., Ind. a. Eng. Chemistry, N 9, 1942.

ASSOCIATION: Institut energetiki AN BSSR, g. Minsk (Institute of Power Engineering, AS BSSR, Minsk)

SUBMITTED: March 27, 1961

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RABINOVICH, G.D.

Determining optical characteristics of selectively absorbing
semitransparent materials. Inzh.-fiz.zhur. 5 no.9:16-24 S '62.
(MJRA 15:8)

1. Energeticheskiy institut AN BSSR, Minsk.
(Plastics--Optical properties)

RABINOVICH, G.D.

Special issue of the international journal "Heat and Mass Transfer"
dedicated to the First All-Union Conference on Heat and Mass
Transfer in Minsk. Inzh.-fiz.zhur. 5 no.9:126-127 S '62.

(MIRA 15:8)

(Heat--Transmission)

(Mass transfer)

RABINOVICH, Grigoriy Davidovich; ZABRODSKIY, S.S., red.;

BEL'ZATSKAYA, L., red. izd-va; VOLOKHANOVICH, I.,
tekhn. red.

[Theory of the thermal calculation of regenerative heat
exchangers] Teoriia teplovogo rascheta rekuperativnykh
teploobmennyykh apparatov. Minsk, Izd-vo Akad. nauk BSSR,
1963. 213 p. (MIRA 16:5)

(Heat exchangers)

RABINOVICH, G.D.

Mechanism of radiation drying of varnishes. Inzh.-fiz.zhur.
6 no.10:40-44 0 '63. (MIRA 16:11)

1. Institut teplo- i massoobmena AN BSSR, Minsk.

LYUBOSHITS, I. L.; RABINOVICH, G. D.; SLOBODKIN, L. S.

"Investigation of the kinetics of varnish-baking on metallic backings with radiative and convective heating."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Inst of Heat & Mass Transfer, AS BSSR.

L 15806-65 ESD(t)/AEDC(a)/SSD/BSL/AFWL/ASD(f)-2
ACCESSION NR: APL047826

S/0170/64/000/010/0130/0135

AUTHORS: El'perin, I. T.; Rabinovich, G. D.

TITLE: Second All-Union convocation for heat and mass exchange

SOURCE: Inzhenerno-fizicheskiy zhurnal, no. 10, 1964, 130-135

TOPIC TAGS: heat exchange, heat transfer, mass transfer, mass exchange, scientific organization, science conference

ABSTRACT: The Second All-Union Convocation for Heat and Mass Transfer was held in Minsk on 5 to 9 May, 1964, for two basic purposes: 1) to review the theoretical and experimental progress in the field, realized over the 3-year period since the first convocation held in Minsk in 1961, and 2) to plan basic research objectives for future work. The meeting was attended by 438 delegates, including 260 from the Soviet Union. Fourteen nations were represented; among the noteworthy participants were: D. Spalding (London University), E. Brun (Sorbonne), E. Toei (Japanese Society of Heat Specialists), Ya. Tsiborovskiy (Warsaw University), T. Evain (New York University), R. Eichorn (Princeton University), U. Grigule (Munich Upper Technical School), A. Endreni (Hungary), D. A. de Briz (Netherlands), L. Strakh, I. Schneller, Ya. Zemanek and O. Blata (Czechoslovakia), M. Novakovich and A. Noim

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